

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference 156350-1 DK		Date of mailing (day/month/year) 01 SEP 2004
International application No. PCT/IL04/01141		International filing date (day/month/year) 16 December 2004 (16.12.2004)
International Patent Classification (IPC) or both national classification and IPC IPC(7): H01S 3/10 and US Cl.: 372/20		Priority date (day/month/year) 18 December 2003 (18.12.2003)
Applicant YEDA RESEARCH AND DEVELOPMENT COMPANY LTD		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application


2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer  Min Harvey Telephone No. (703) 306-3329
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IL04/01141

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This opinion has been established on the basis of a translation from the original language into the following language _____ which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IL04/01141

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>1-70</u>	YES
	Claims <u>71-72</u>	NO
Inventive step (IS)	Claims <u>1- 70</u>	YES
	Claims <u>71-72</u>	NO
Industrial applicability (IA)	Claims <u>1-72</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claim 71 lacks novelty under PCT Article 33(2) as being anticipated by Edlinger et al. (US5675691). Edlinger disclose in Fig.3b and col.2, l.47-67 the beam coupler 7 assembly comprising a plane parallel plate with its front and rear facets carrying first and second gratings, respectively, the first grating splitting the light into various diffraction orders and allowing their propagation inside the plate towards the second grating.

Claim 72 lacks novelty under PCT Article 33(2) as being anticipated by Terahara et al. (EP0982620 A2) . Terahara disclose in Fig.2 the beam coupler assembly comprising two polarizers (P1 and P2) accommodated in a spaced-apart relationship along an axis of light propagation through the resonator cavity; and an optical element configured as a 45 degree polarization rotator between the two polarizers.

Claims 1-70 meet the criteria set out in PCT Article 33(2)-(3), because the Zhang (US2003/0063633), Edlinger, and Terahara prior art does not teach or fairly suggest the limitations of the beam coupler assembly configured to split light impinging thereon into a predetermined number of spatially separated light channels, and to cause phase locking and at least partial coherent combining of the light channels, which have common longitudinal and transverse modes, in a double pass through the beam coupler assembly.

Claims 1-72 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.